



**WYSE® THIN COMPUTING
AND VIRTUALIZATION
SOLUTIONS**



For many, it's become impractical to run a business on personal computers today. If they're not locked down, PCs can be fraught with problems, from being attractive to thieves to being easily infected with viruses and worse. That's why, in enterprises of all shapes, sizes, and markets, thin computing is making a big impact. It's more secure, more available, more reliable, more manageable, more scalable, and offers a better ROI and lower TCO than PCs. In fact, analysts have suggested that thin computing TCO can be half that of a traditional unmanaged PC environment.

WHAT'S THIN COMPUTING?

Thin Computing is the use of a powerful datacenter focused strategy like Cloud Computing or Client Virtualization (using Citrix® XenApp, XenDesktop, VMware View, Microsoft® Windows Terminal Services, Hyper-V, UNIX/Linux, or HTML applications) accessed by simpler, more energy-efficient, desktop or mobile appliances, instead of a traditional PC. This proven model delivers the productivity people need, at a lower cost than traditional methods, all while dramatically improving cost, security and manageability. It's the most effective Green IT strategy as well.

THE FIVE VALUE POINTS OF THIN COMPUTING

A thin computing strategy consists of some or all of these five areas, which we'll cover here:

- Datacenter Strategy
- Client Devices
- Provisioning Software
- Management Software
- Virtualization Software

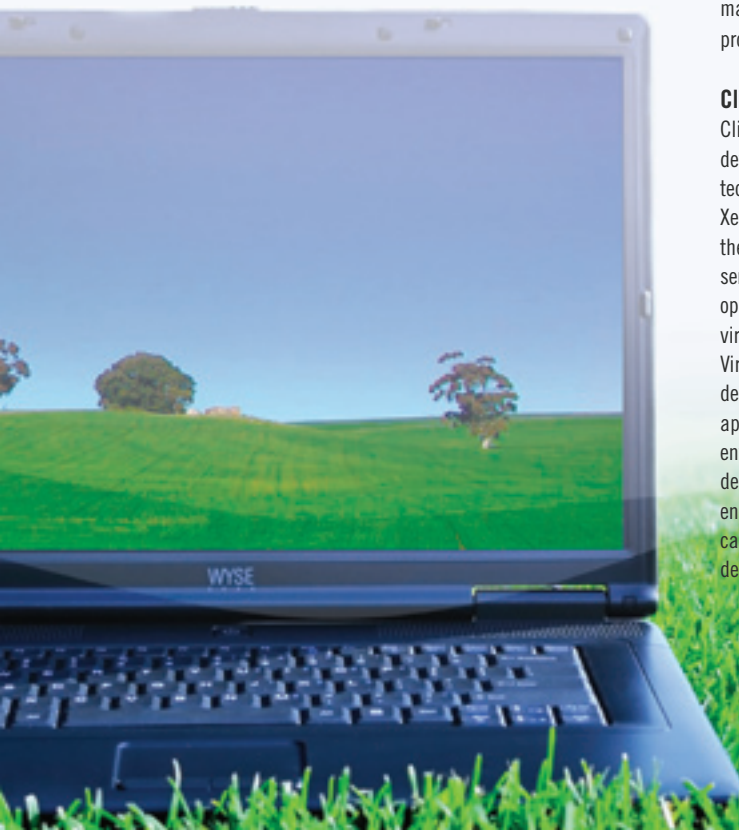
DATACENTER STRATEGY

Presentation Virtualization and Thin Clients

Presentation Virtualization is a cost-efficient way, using software such as Citrix XenApp or Microsoft Terminal Services, to deliver access to centrally stored information from anywhere. A server or server farm processes applications and information, sending screens to the thin client desktop over a network connection so that it appears to the worker as though everything were executing locally. These solutions enable IT to deliver applications such as Microsoft Office, SAP, and Oracle to the desktop, rather than installing them at each desk. With this approach, applications run simultaneously on the server, with each workers session isolated from one another. Presentation Virtualization typically works well for more than 80 percent of a company's applications. Thin clients are an ideal endpoint for this solution, as complexity typically found in PCs is shifted to the datacenter, where it can be more effectively managed, enabling employees to focus on their work and be more productive.

Client Virtualization and Virtual Clients

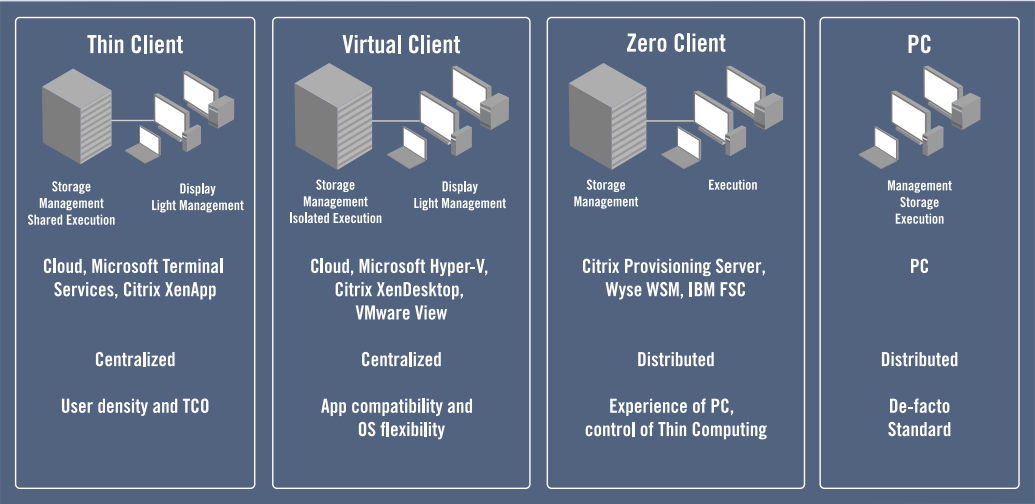
Client Virtualization, or Virtual Desktop Infrastructure or VDI, is a recent development in thin computing. It's an adaptation of virtualized server technology. Using enterprise virtualization products like Citrix XenDesktop, VMware View, and Microsoft Hyper-V, a hypervisor runs on the server hardware and manages multiple virtual machines within the server, with each virtual machine containing a user's workload, their operating system and applications. This workload is accessed using a virtual client, and delivers an experience like a standard PC. Client Virtualization allows an OS, like Microsoft Windows to execute its own dedicated virtual machine on the server. In this way, no two people's applications can conflict with one another. What's more, with desktop environments consolidated within the data center, organizations can deliver secure, isolated desktops that are always on. Each virtual client endpoint delivers the environment to the user, is centrally managed and can be placed anywhere on the network. Client Virtualization typically delivers complete application compatibility.



OS and Application Virtualization via Streaming to Zero Clients

OS and Application Streaming is a powerful third option in virtualization. While the Presentation Virtualization and Client Virtualization applications are typically executed on the server and display on the client endpoint, in OS and Application Virtualization via Streaming, the OS, applications, and data are stored at the datacenter, and sent over the network in real-time to be executed on the endpoint device, as they are with a PC. The value of this model is that it takes the hard disk drive out of the endpoint, moving storage to the datacenter, and making security, control, and OS and application maintenance vastly simpler. Software is delivered for execution on the Zero Client (named for the fact that the client has no software or storage capability) in real time, with performance capabilities equal to today's PCs, but with far lower costs, datacenter and infrastructure requirements.

THIN COMPUTING MODEL COMPARISON



CLIENT DEVICES

Thin Clients are a core component of thin computing. They improve on the PC paradigm by centralizing management, data, and sometimes execution to enforce security initiatives, reduce costs by simplifying management, deployment, and increasing reliability and life cycle. In essence, thin clients shift computing complexity to the datacenter, where it can be managed by professionals. This approach has been proven to increase user productivity by eliminating such break-fix activities as HDD replacements, crashes, memory upgrades, virus outbreaks, and more.

Cloud Computing

Cloud computing refers to using technologies like those mentioned above to host applications in a private (inside your building) or public (on the Internet) datacenter, accessing them over a private network, or a secure channel over the Internet. Using private and public clouds has the potential to make business and personal application access ubiquitous, and accessible from the office, home, road, or your hand, with a thin client device or software. In your cloud, you can choose presentation virtualization, client virtualization, or a combination of both, using powerful solutions from Citrix, VMware, Microsoft, and others. Public clouds are already available from Google, Amazon, Microsoft, and others. Accessing these clouds doesn't require a PC, in fact, a PC may be overkill for many applications.

DESKTOP THIN CLIENTS

If your users operate from a stationary office, Wyse offers desktop clients optimized for these virtualization environments, so you can find the solution that best fits your needs. For more information than we can present here on the different operating systems and solutions, please visit our web site at wyse.com today. Desktop units offer a broad range of mounting options for any work environment via an innovative mounting system that allows the unit to be conveniently attached to a wall, desk, or in any space-constrained environment. The following operating system descriptions introduce you to the broad spectrum of uses for desktop thin clients, enabling you to choose the model that fits the target environment best.

Wyse ThinOS™

When you need optimized performance and simplicity, choose the ultra-fast Wyse ThinOS.

These stateless clients are tailored deliver out-of-the-box, install-and-run simplicity. Wyse ThinOS offers the utmost security and protection from viruses and malicious software because the software does not have a local web browser or publicly exposed API that can be exploited by hackers, and no data is stored on the device. Datacenter connectivity is achieved using thin protocols from Microsoft (RDP) and Citrix (ICA). Wyse ThinOS clients boot faster than any competing device, are self managing, and automatically and centrally configured.

The Wyse S10™ thin client is one of the smallest thin clients on the market. The functional and compact chassis has USB 2.0 plus serial ports, and fits just about anywhere, even on the back of a flat-panel display.

The Wyse V10L™ thin client is a more powerful and expandable client, with support for rich multimedia applications, USB 2.0, PS/2, serial, and parallel type peripherals, digital or analog displays and optional integrated smartcard or wireless networking.

The Wyse V10L Dual-DVI™ thin client is the first thin client to support dual DVI-I video outputs, supporting two digital or analog displays for excellent visual uniformity and increased workspace.

Wyse Linux V6™, and

Wyse Enhanced SUSE Linux Enterprise – In partnership with Novell

For groups running ICA or RDP who also need a local Firefox browser, terminal emulation*, and local open-source applications, our Linux offerings include the powerful Wyse Linux V6 and new SUSE Linux Enterprise-based family. These adaptable thin clients provide the same management and configuration benefits of Wyse ThinOS, and can be enhanced with add-on functionality, have built-in virus immunity, and a simple connection manager dashboard

The Wyse S50™ thin client (with Wyse Linux V6) is one of the smallest, Linux-based thin clients on the market. The functional and compact chassis has USB 2.0 plus serial ports, and fits unobtrusively on or under a desk, or can be easily mounted on a wall.

The affordable Wyse V50L™ thin client, and more powerful Wyse V50LE™ (both with Wyse Linux V6) include a powerful CPU; optional smart card slot; optional internal wireless networking, optional CardBus/PCMCIA slot; plus serial, parallel, PS/2, and USB 2.0 ports.

The Powerful Wyse R50L™ thin client and more powerful Wyse R50LE™ (both with Wyse-enhanced SUSE Linux Enterprise) introduce a new level of CPU and graphics capability, with a powerful superscalar CPU; independent graphics processor and dual DVI outputs, optional internal Wi-Fi b/g/n and Bluetooth wireless networking, plus serial, PS/2, and six USB 2.0 ports. The Wyse R50LE thin client adds faster processing, PCI Express slot expansion, and parallel port.

**Terminal emulation options via Ericom - PowerTerm® Terminal Emulation*



Wyse-enhanced Microsoft Windows CE

For those organizations that need to run a basic local browser and terminal emulation in addition to ICA and RDP, we suggest the powerful, Wyse-enhanced Microsoft Windows CE operating system.

This operating system gives administrators increased flexibility and performance, with the simplicity that Windows CE is known for. It allows IT managers to take advantage of the ability to switch easily and rapidly between a PC-like desktop and connection manager dashboard, plus the many supported peripherals and add-ons available.

The Wyse S30™ thin client is our smallest Windows CE-based thin client. Small enough to fit in your hand, this device has four USB 2.0 ports plus serial and VGA ports.

The Wyse V30L™ thin client and more powerful Wyse V30LE™ thin client provide a more powerful CPU, plus serial, parallel, PS/2, and USB ports and options including a smart card reader, internal wireless networking, and CardBus/PCMCIA slot. The Wyse V30L and the Wyse V30LE thin clients offer the expansion and connectivity to meet most needs.

Wyse-enhanced Microsoft Windows XP embedded and new Microsoft Windows Embedded Standard

When you need a full version of Internet Explorer as a local browser, require specialty peripherals, or need the latest 32-bit Windows compatibility, Wyse-enhanced Microsoft Windows XP embedded or new Windows Embedded Standard are excellent choices. These flexible, customizable, and robust thin computing operating systems can fit the most demanding business computing requirements. Wyse Windows Embedded-based thin computers can run 32-bit Windows applications,

either locally or from servers located on the network.

The Wyse S90™ thin client is one of the smallest Windows XPe-based thin clients on the market. It has four USB 2.0 ports plus serial and VGA ports.

The Wyse V90L™ thin client and more powerful Wyse V90LE™ thin client provide a more powerful CPU for multimedia decoding, plus serial, parallel, PS/2, and USB ports and options including a smart card reader, internal wireless networking, and CardBus/PCMCIA slot.

The Powerful Wyse R90L™ thin client and more powerful Wyse R90LE™ (both with Windows XP embedded) introduce a new level of CPU and graphics capability, with a powerful superscalar CPU; independent graphics processor and dual DVI outputs, HD video playback, optional internal Wi-Fi b/g/n and Bluetooth wireless networking, plus serial, PS/2, and six USB 2.0 ports. Wyse R90LE adds faster processing, PCI Express slot expansion, and parallel port.

Wyse R90LW™ thin client and more powerful Wyse R90LEW™ (both with Windows Embedded Standard) like the R90L and R90LE, but includes Microsoft's Next generation of Windows Embedded - powerful, extensible and yet maintaining full backward compatibility with all previous XPe compliant software and hardware. Includes the latest RDP (version 6.1), ICA and VMware (View 3.0).





MOBILE THIN CLIENTS

For the mobile user, Wyse offers mobile thin clients that work from the office, to the conference room, to the field, to home. Based on Wyse-enhanced Microsoft Windows XP embedded or Wyse-enhanced SUSE Linux Enterprise, choose from five models with a choice of screen size, weight, security and connectivity options. And because these Wyse mobile thin clients are designed for access to applications that are fully managed in the data center, they contain no HDDs, and are inherently more secure from theft, viruses and other malicious software attacks.

The Wyse X90™ and Wyse X90e™ (Windows XP embedded) mobile thin clients are ultraportable, multimedia capable, mobile thin clients. The first mobile thin clients to support multimedia video playback capability, USB port virtualization, a 12.1-inch LCD wide screen, 802.11b/g, optional 3G wireless capabilities via Express Card expandability. The Wyse X90e mobile thin client adds integrated Bluetooth™ 2.0 and smart card reader.

The Wyse X50L™ (Wyse-enhanced SUSE Linux Enterprise) mobile thin client is a desktop replacement, multimedia capable, Linux-based mobile thin client. 15.4" Widescreen WXGA TFT LCD screen provides large viewing area. Simplified management, support for local open source applications and Firefox browser complete the picture.

The Wyse X90L™ and Wyse X90Le™ (Windows XP embedded) mobile thin clients are desktop replacement, multimedia capable, mobile thin clients. 15.4" Widescreen WXGA TFT LCD screen provides large viewing area. Mobility away from the office or Wi-Fi is accomplished by selecting an Express Card from local wireless network providers. The Wyse X90e mobile thin client adds integrated Bluetooth™ 2.0 and smart card reader.

ZERO CLIENTS

The next generation of flexibility, security and ease of management, Wyse zero clients contain no operating system software on the device, but instead use OS and Application Virtualization via Streaming to deliver a true PC experience with thin computing benefits of centralized storage, control, and simplified OS and application maintenance. The true PC OS and applications are literally delivered in real-time over the LAN from Wyse's zero client provisioning software (Wyse WSM™) in the datacenter. Wyse zero clients can be provisioned with operating systems and applications compatible with Windows XP embedded, Windows 2000 Professional, Windows XP Professional, Vista, and Windows 7 (planned support in late 2009). This combination works perfectly stand-alone or in combination with Citrix, Microsoft or VMware-based virtualization technology, and provides IT the discretion to execute applications that won't run on the server on the desktop, just like a PC, while avoiding the management issues associated with a typical PC.

The Wyse V00L™ and more powerful Wyse V00LE™ zero clients provide a choice of 800MHz or 1.2GHz CPUs, plus optional smart card slot, CardBus/PCMCIA slot, and serial, parallel, PS/2, and USB 2.0 ports. These zero clients require no management and can be provisioned with a range of embedded or standard operating systems and applications, providing the most flexible desktop platform for presentation or client virtualization environments.

Scorching performance with Wyse R00L™ zero client and more powerful/expandable Wyse R00LE™ with a new level of CPU and graphics capability, with a powerful superscalar CPU; independent graphics processor and dual DVI outputs, HD video playback, optional internal Wi-Fi b/g/n and Bluetooth wireless networking, plus serial, PS/2, and six USB 2.0 ports. R90LE adds faster processing, PCI Express slot expansion, and parallel port.

DESKTOP APPLIANCES FOR CITRIX

XENDESKTOP

Wyse Viance™ desktop appliance for Citrix XenDesktop

When you simply want to maximize user experience while minimizing deployment and management hassles, choose the Wyse Viance desktop appliance for XenDesktop. The Wyse Viance enables any organization to deliver Virtual Desktops with a superior user experience in an appliance that is ready to login to XenDesktop in seconds and does not require any additional end-user training.

Furthermore, Wyse Viance helps ease deployment hassles by providing an appliance that requires minimal management and administration. The appliance is ready out of the box to connect to a XenDesktop environment, no manual loading or updating of latest ICA client or additional software is ever needed. Wyse Viance includes built-in support for Wyse Collaborative Processing Architecture™ which adds functionality to Citrix HDX, and provides the best user experience, while reducing loads on the datacenter and network. Viance can be set to auto-upgrade its firmware or can be managed on an on-going basis using management software such as Wyse Device Manager.

Wyse Viance compiles with the Citrix Ready "Plus" Designation for desktop appliances

WYSE INFRASTRUCTURE SOLUTIONS

Thin computing is designed to provide all the power of a PC to people at their desks, while giving IT all the management and control of a server-based enterprise solution. That means infrastructure management tools are needed in order to reduce the strain on the IT staff and to deliver the maximum benefit to everybody using thin computing and client virtualization.

PROVISIONING SOFTWARE FOR ZERO CLIENTS

Wyse WSM™

Wyse WSM is the first solution to use OS and application streaming to package and deliver the operating system and applications independently of one another to zero client and PC desktops, giving IT administrators the control they need to ensure the consistency of desktop software across the enterprise. Wyse WSM requires very little datacenter infrastructure, operates standalone, or complements existing presentation and client virtualization solutions, while dramatically reducing the storage space, IT time and expense of delivering and maintaining desktop software throughout an enterprise.

By streaming the operating system and applications independently to a stateless zero client or PC and running them locally in memory, Wyse WSM enables virtually any Windows application to be run on the zero client just as it would on a traditional PC. Yet all files and applications reside in the data center, where they are much easier to back up, manage, and maintain. Because applications are streamed independently of the operating system, Wyse WSM enables customers to standardize operating system images across their organization and deliver applications based on user roles and responsibilities. Administrators can also easily provision new applications or updates to existing applications without having to modify the operating system image.



MANAGEMENT SOFTWARE

Wyse Device Manager™

Wyse Device Manager software simplifies IT management, reduces TCO, and improves ROI by centrally controlling a world of intelligent devices — local and remote, wired, desktop, and mobile. From one console, you can use Wyse Device Manager to control, upgrade, protect, and repurpose up to thousands of clients — from Wyse and others. Wyse Device Manager optimizes network bandwidth during software distribution operations, provides manual and automatic discovery of network-attached devices, and performs scheduled updates with its powerful and easy-to-use scheduling and device grouping capabilities. This gives network administrators the performance and flexibility they need to manage thin devices on the network. Using web-services technology, Wyse Device Manager is easy to use from anywhere on the network. Additionally, the Wyse Professional Services team is available to work with your unique requirements to ensure a successful implementation and smooth rollout of Wyse Device Manager.

VIRTUALIZATION SOFTWARE WITH WYSE COLLABORATIVE PROCESSING ARCHITECTURE™

A Wyse Exclusive - Wyse offers innovative software that enhances the user experience with today's presentation and client virtualization software solutions. Wyse virtualization software is built in to Wyse thin clients and addresses limitations previously found in thin computing, enhancing the user experience, reducing network bandwidth needs, and expanding server scalability.

Multi-display

Wyse TCX Multi-display™ software adds or enhances multiple display awareness of the ICA and RDP protocols used with Wyse thin clients. The result is a more natural PC experience with two to six displays (hardware permitting), including improved dialog box placement and application minimize / maximize behavior.

Multimedia

Wyse TCX Multimedia™ adds Collaborative Processing Architecture to the ICA/HDX and RDP protocols, enabling a device to deliver a rich multimedia experience to the user, while reducing network utilization and server load. User scalability in a multimedia environment has been shown to be improved by up to 800 percent with this technology.

USB Peripherals

Wyse TCX USB Virtualizer™ adds or enhances USB peripheral support of the ICA/HDX and RDP protocols by virtualizing the client USB ports back to the server. The need for client-side drivers is eliminated, enabling the use of USB scanners, HDDs, CD and DVD readers and writers, digital audio players, smartphones, webcams, mobile phones and other USB devices. Wyse TCX USB Virtualizer provides IT administrators with the power to choose which USB peripherals may or may not be used on the client. Wyse TCX USB Virtualizer works with client virtualization solutions from Citrix, Microsoft and VMware.

Bi-directional Sound

Wyse TCX Rich Sound™ adds Collaborative Processing Architecture for sound to the ICA/HDX and RDP protocols, enabling quality bi-directional sound. TCX Rich Sound enables or improves applications for speech recognition, VoIP, Unified Communications, voice dictation, and Adobe Flash.

For more information on the different infrastructure solutions, please visit www.wyse.com today.



TRUST THE EXPERTS IN THIN COMPUTING

As the global leader in thin computing, Wyse and our partners understand the needs of both industry and the public sector, as well as the demands each places on technology. Our entire line of clients is compatible with Citrix XenApp, XenDesktop, VMware View, Microsoft Terminal Services and Hyper-V. When you're ready to improve information access and simplify management, turn to the one company totally focused on delivering thin-computing solutions on your choice of server hardware. Nobody understands thin computing like Wyse. And we'll prove it to you.

To start deploying thin computing in your offices, call Wyse or your local value-added reseller. For more information on thin computing, visit our website at www.wyse.com today. Or call Wyse now at 1-800-GET-WYSE.

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